UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,556	10/06/2003	William D. Ramsey	M61.12-0523	3282

27366 7590 01/15/2009
WESTMAN CHAMPLIN (MICROSOFT CORPORATION)
SUITE 1400
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402-3244

EXAMINER	
COLUCCI, MICHAEL C	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
01/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** *10/679,556*	**Applicant(s)** RAMSEY, WILLIAM D.	
	Examiner MICHAEL C. COLUCCI	**Art Unit** 2626	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 17 December 2008 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a) ☐ The period for reply expires ______months from the mailing date of the final rejection.

b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: _____.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/Richemond Dorvil/
Supervisory Patent Examiner, Art Unit 2626

Continuation of 11. does NOT place the application in condition for allowance because:

Re Remarks relevant to "a transition probability that is generated by dividing a count of the number of times a pair of semantic entities appear in a particular order on a same level of training data by a count of the number of times the pair of entities appear on the same level in the training data". After review of the claim language in view of the references cited, Examiner maintains previous arguments, wherein Deligne has been introduced to address the identification of entities within a string in a training environment. Though Su teaches word pairs, semantic analysis, and phase levels, Su lacks this teaching in a training environment. Additionally, the ordering of words is necessary when analyzing semantics and the syntax of text, for example whether a pair of words is adjacent or not can severely effect the processing of text when applying the calculation of a transition score/probability. Examiner takes the position that the primary reference Su et al. US 5418717 A (hereinafter Su) is in fact within the scope of claim 1, wherein Su teaches a mechanism for deriving the syntactic score is illustrated. FIG. 4 represents a syntax tree 400 having a plurality 450 of reduction sequences L.sub.1 to L.sub.8 (produced by bottom-up parsing). Specifically, the syntax tree 400, which comprises a sentence of four words (w.sub.1 -w.sub.4), can be decomposed into a plurality of phrase levels which correspond to the reduction sequences 450. A phrase level is a set of terminal and nonterminal nodes that appear at a step of the parsing process where the reduction sequence L.sub.i is the i-th phrase level and the transition from a phrase level L.sub.i to the next phrase level L.sub.i+1 corresponds to a reduction of some terminals or nonterminals at time t.sub.i (Col. 13 lines 18-32)

Further, Su teaches that a syntactic score may be formulated as the product of the conditional probability of a phrase level being reduced (into the next level), given the previous sequence of phrase levels (e.g., level 3 reducing into level 4).
These individual probabilities may be simplified into conditional probabilities of a phrase level based on the immediately preceding phrase level (e.g., level 3). Thus, the syntactic score may be rewritten into the conditional probability of a given symbol being reduced into the next level, based on the given reducing symbols and their left and right contexts (Col. 13 lines 34-44).

Furthermore, Su even specifically teaches various (conditional) probabilities (hereinafter, the parameters for the scoring mechanism) in the previous sections can be estimated from a master text (i.e., a text corpus). The general approach to estimate such probabilities is to divide a frequency of occurrence of an event at a given condition by the frequency of occurrence of any event at the same given condition. For example, the frequency of occurrence of one phrase level being reduced from a known phrase level is divided by the frequency of occurrence of any phrase level being reduced from the same known phrase level to estimate the transition probability required for syntactic score. Such an estimation method is known as the Maximum Likelihood Estimation (Col. 15 lines 53-66).

Additionally, Su teaches grammar rules, indicative of the parent-children node relationship among grammatical constituents, by computer processing means, and assigning an ordered list of numbers (hereinafter, a permutation vector), for each grammar rule indicative of the semantic precedence of each child node relative to the other nodes (Col. 21 lines 4-10).

Additionally, Su teaches a syntactic score, semantic score, and transition probability relevant to the transitioning from one phrase level to the next, wherein syntactic and semantic scores are combined, but a syntactic score is directly dependent on a transition probability (Fig. 10A). Su also teaches a Semantic Score module 324 that improves the process of selection by deriving an appropriate semantic annotation when the lexical categories and the syntactic analyses of the input text are known. A semantic annotation is the tagging of a word with particular semantic features. The Semantic Score module 324 is accessed by semantic feature(s) assigned to both the words under consideration and the syntactic categories of the constructed syntactic structures. Examples of semantic features are verbs of location, such as "locate"; verbs of production such as "write" and "build"; nouns of position such as "park" "New York", and the like. Since disambiguation has, to a large extent, already been performed by the Lexical and Syntactic modules, only a few semantic features need be employed. The accessing method for the Semantic Score module 324 is similar to the previously described method for accessing the Syntactic Score module 323 which also considers the context terms (Col. 9 line 66 - Col. 10 line 18). Examiner construes "levels" to be functionally equivalent and effective to terms that both describe a specific feature such as location. This concept is consistent with that of the present invention's Fig. 7, wherein city and city name are considered a "level" any other word that is on that same "level" is considered a potential pair, such as New York and a park are both places.

However, Deligne et al. US 6314399 B1 (hereinafter Deligne) was incorporated to strongly address the method of a transition score. Though Su teaches a transition probability and dividing a frequency of occurrence of an event at a given condition by the frequency of occurrence of any event at the same given condition similar to that of Bayes theorem, Su does not specifically teach the operation of dividing a count of the number of times a pair of semantic entities appear in a particular order on a same level of training data by a count of the number of times the pair of entities appear on the same level in the training data. The frequency of occurrence calculation that Su teaches is very similar to the operation of dividing a count of the number of times a pair of semantic entities appear in a particular order on a same level of training data by a count of the number of times the pair of entities appear on the same level in the training data, the specific use of training data is not mentioned. Deligne in fact teaches taking as an input a training string of units, registering in an inventory of sequences all the combinations of 1 to N units occurring in the input string, counting the number of times all sequences of units occur and the number of times all pairs of sequences of units co-occur in the input training strings of units, computing an initial bigram probability distribution of all the pairs of sequences as the counted number of times the two sequences co-occur divided by the counted number of times the first sequence occurs in the input training string, and outputting the inventory of sequence and the initial bigram probability distribution of the sequences in the inventory (Deligne Col. 3 lines 26-38).

Since Su teaches the use of phrase/sentential level analysis, semantic scores, syntactic scores, transition probabilities, frequency of occurrence of semantic data, etc. Su in combination with Deligne would have been obvious, particularly relevant to training data, wherein general approach to estimate such probabilities is to divide a frequency of occurrence of an event at a given condition by the frequency of occurrence of any event at the same given condition. For example, the frequency of occurrence of one phrase level being reduced from a known phrase level is divided by the frequency of occurrence of any phrase level being reduced from the same known phrase level to estimate the transition probability required for syntactic score. Such an estimation method is known as the Maximum Likelihood Estimation (Col. 15 lines 53-66). Su teaches the use of transition probabilities relevant to syntactic and semantic data, wherein the use of bigram probability by Deligne is considered as an additional type of probability but the similar operation of frequency of occurrence by both Su and Deligne still remains, with Deligne being more specific to training data.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Su in view of Cohen to incorporate generating a transition probability comprises dividing a count of the number of times the pair of semantic entities appear in a particular order on the same level in training data by a count of the number of times the pair of semantic entities appear on the same level in the training data as taught by Deligne to allow for a probability that takes into account semantic, syntactic, and transition probabilities relevant to training data to generate a set of all possible combination of words or word sequences, wherein the frequency of occurrence as well as further probabilities relevant to letters, words, sentences, or other larger discourse structures are taken into consideration by counting the number of times all sequences of units occur and the number of times all pairs of sequences of units co-occur in the input training strings of units, computing an initial bigram probability distribution of all the pairs of sequences as the counted number of times the two sequences co-occur divided by the counted number of times the first sequence occurs in the input training string (Deligne Col. 3 lines 26-38).

Re remarks relevant to claim 19, Examiner maintains the conclusion reached in the most recent interview as well as previous arguments, wherein the language of claim 19, particularly claim language pertaining to command structures, command attributes, and full semantic structures is interpreted with the broadest meaning and thus terminology such as command structures and semantic structures are construed have a well known definition in linguistics.

Examiner takes the position that Su in view of Sumita in fact teaches placing a full semantic structure in multiple command semantic structures, wherein Sumita teaches a document detection system, comprising: input analysis means for determining a semantic structure of a detection command containing natural language expressions entered by a user; document storage means for storing a plurality of detection target documents; and detection processing means for detecting those detection target documents stored in the document storage means which contain the semantic structure of the detection command determined by the input analysis means as detected documents (Sumita Col. 3 lines 45-55

Further, in light of the specification of the present invention, regarding the broad use of a placing a full semantic structure in multiple command semantic structures, Sumita in fact teaches a document detection system, comprising: input means for entering a detection command specified by a user; document storage means for storing a plurality of detection target documents; detection processing means for detecting those detection target documents stored in the document storage means which match with the detection command entered at the input means as detected documents; summary generation means for automatically generating a summary of each detected document obtained by the detection processing means according to text structures of each detected document; and detection result output means for displaying each summary generated by the summary generation means (Sumita Col. 4 lines 4-16). It is clear that Sumita in fact teaches the use of semantic structures, wherein a plurality of semantic structures as well a plurality of documents stored in an index memory (Sumita Fig. 11). Sumita further teaches presence of the documents having different relationships between two keywords "computer" and "design", according to the command from the user entered through the input unit 11, the detection processing unit 13 controls the detection result output unit 17 to display a list for these two semantic structures, whenever one keyword in the detection key coincides with either the target word or the source word for these two semantic structures in the semantic structure index memory. Sumita also teaches keyword detection operation using the detection key is carried out, according to the command from the user entered through the input unit 11, the detection processing unit 13 looks up the semantic structure index memory for the file name of each document obtained by the keyword detection operation, and controls the detection result output unit 17 to display the document name of each document along with all the semantic structures contained in each document in a format of the target word, the relation symbol, and the source word. At this point, a list display of all the documents containing each semantic structure can be provided for each semantic structure separately along with a display of the semantic structures, such that the user can Immediately recognize the semantic structures contained in the documents obtained by the keyword detection operation (Sumita Col. 22 lines 30-63).

.